



PROVINCE OF BRITISH COLUMBIA.

DEPARTMENT OF AGRICULTURE.

(Live-stock Branch.)

SEED-IMPROVEMENT.

By J. C. READEY, SOIL AND CROP INSTRUCTOR.



THE Canadian Seed-growers' Association is a voluntary organization, working in conjunction with the Dominion Seed Branch and as an extension of the experimental-farm system, and receiving the necessary funds for its operation from the Dominion Government. The object of the Association is to conserve for the public good the quality of seed produced by plant-improving and plant-breeding experts. It is easy to understand that the small quantities of this high-class seed distributed among the farmers would soon lose its identity, unless some efficient measure were adopted to retain it. It aims also to assist the farmer to take advantage of a few of the laws of plant-improvement and to give his work a recognition that will bring him financial advantage.

The farmer's work in seed-improvement is based on the fact that individual plants of the same variety sown in the same field may vary in type, yielding-power, adaptability, strength of straw, milling quality, and in various other ways. By continuous selection of those plants which conform to a standard the undesirable plants may be eliminated and the best retained. Actual field tests have demonstrated wonderful differences in yield and quality in favour of selected seed when the selection has been carefully and intelligently made. Furthermore, well-selected seed grown under favourable conditions such as should be given the farm seed-patch will produce seed superior in plumpness and vitality, and thus contribute to the yield of the succeeding crop.

THE METHODS.

First decide on the variety of the crop to be improved. It is important that the variety chosen shall be adapted to the district, and if at all possible the whole district should adopt the same variety. For purposes of marketing it is important that large quantities of seed conforming to the same standard should be available at the one point. At the outside, not more than two varieties of the same crop should be chosen. Here is a good place for the farmers to benefit by the practical application of the principles of co-operation.

Having decided on the variety to be improved, the next step before making any selection is to get clearly defined in one's mind the *qualities to be desired* in the plant, and the *type of plant* likely to produce these qualities.

The variety of crop and the type of plant having been decided, the best seed conforming to these requirements should be procured and sown on the best piece of ground available on the farm.

Just before the crop is harvested about 40 lb. of seed should be selected from plants which conform as nearly as possible to the desired standards. This process repeated for three years, the selected grain being sown each successive year, provides

the grower with what the association recognizes as "elite stock seed." It is not necessary at the present time for the farmer to go through this tedious process, as elite stock seed can generally be secured from experimental stations and from growers who have made a specialty of producing it. Growers must, however, make one year's selection before being admitted as active members of the Association. The product of the elite stock seed for three generations may be sold as registered seed, provided it passes the inspection of the Association. Thus it is evident that the prospective member may have seed eligible for registration the second season after purchasing elite stock seed, or four seasons after starting to improve from ordinary seed.

Seed cannot be registered if more than three generations removed from the elite stock seed. It is necessary, in order to maintain the standard and purity of the seed, to practise hand-selection each year. Each year about 40 lb. of seed should be selected from a plot seeded with hand-selected seed, the remainder of the crop, after the selection has been made, being used to sow the following spring for the production of registered seed.

INSPECTION AND REGISTRATION.

The crops intended for registration are inspected each year by an official of the Association before the crop is harvested.

When the crop is thrashed, cleaned, and sacked, samples must be submitted to the Association and a germination test made. An official of the Association then inspects the grain in the sack, and if satisfied as to quality, purity, trueness to type and vitality, attaches the seal of the Association and a certificate of registration is issued.

ADVANTAGES.

Under the rules of the Association, seed of strong vitality, uniform, pure, and of a quality suited to the market requirements is obtained. In short, a more valuable crop for every purpose is produced.

The seal of the Association on grain offered for sale is a guarantee of its quality, and secures for the grower of the seed a substantial advance in market quotations over ordinary seed. A catalogue listing the seed offered for sale by the members is prepared each season by the Association and is distributed to the seed-buying public.

In conclusion, the system outlined by the Canadian Seed-growers' Association is the best system known that may be put into practice by the average farmer. Intelligently followed, this system of selection will not only maintain but will improve to a remarkable degree both the yielding-power and the marketing qualities of the crop selected.

We beg to recommend the system to the consideration of all farmers.

DEFINITIONS OF TERMS USED BY THE CANADIAN SEED-GROWERS' ASSOCIATION.

(1.) By the term "hand-selected seed" is meant cleaned seed, obtained from heads, panicles, pods, ears, or, in the case of potatoes, tubers which are uniform in character and which have been selected by hand from plants which are sound, vigorous, and normally developed.

(2.) By the term "hand-selected seed-plot" is meant a piece of land bearing a crop produced *directly* from hand-selected seed.

(3.) By the term "elite stock seed" is meant—

(a.) The general product of a hand-selected seed-plot or other area originating from hand-selected seed of at least three years' satisfactory selection, and which is considered by the executive to be worthy of distribution; or

(b.) A pure stock of seed originating from a single plant the progeny of which has been proved in plot or field tests (and by other means of examination), to the satisfaction of the executive, by the originator or under his supervision.

(4.) By the term "multiplying field" is meant a piece of land devoted to the multiplication of elite stock seed or the progeny thereof up to and including the third generation.

(5.) By the term "registered seed" is meant the progeny of elite stock seed up to and including the third generation descended therefrom, when such progeny has been grown and handled in accordance with the rules of the Association and has been duly accepted for registration.

(6.) By the term "improved seed" is meant seed originating from hand-selected seed, but which is not yet entitled to public recognition as "registered seed."

To the Secretary-Treasurer,
Canadian Seed-growers' Association,
Canadian Building, Ottawa, Ont.

Sir,—I hereby make application to be admitted as a member of the Canadian Seed-growers' Association. It is my purpose to grow seed (Kind and variety of crop.)
foundation stock of which variety having been obtained by me from.....
in the year..... In the production and handling of this
seed I agree to comply with the rules and by-laws of the Association to the best of
my ability.

(Signed.)

....., 19.....

The farm on which this seed will be grown is situated as follows:—
Province
County (in case of Eastern Canada).....
Section (in case of Western Canada).....
Township..... Range..... W. of..... Mer.

VICTORIA, B.C.:

Printed by WILLIAM H. CULLEN, Printer to the King's Most Excellent Majesty.
1914.